MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

BDM1024 – DATABASE MANAGEMENT SYSTEM

(All sections / Groups)

09 MARCH 2020
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

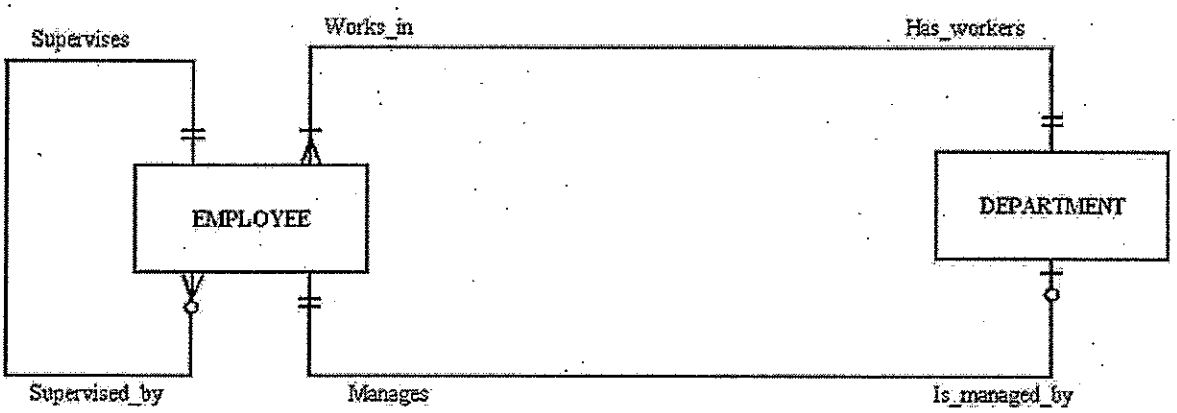
1. This question paper consists of 5 pages (including cover page) with 4 questions only.
2. Attempt ALL FOUR questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answer in the Answer Booklet provided.

Question 1 (25 Marks)

a) The database development life cycle (DDLC) is a process of designing, implementing and maintaining a database system to meet strategic or operational information needs of an organisation. Explain the 5 stages and activities associated with each stage of the database system development lifecycle.

(5 x 4 =20 Marks)

b) Derive all the business rules reflected in the following data model. (5 Marks)



Question 2 (25 Marks)

A car dealership company sells both new and used cars, and it operates a service facility. The following are the business rules of the company.

- A salesperson may sell many cars, but each car is sold by only one salesperson.
- A customer may buy many cars, but each car is bought by only one customer.
- A salesperson writes a single invoice for each car he or she sells.
- A customer gets an invoice for each car he or she buys.
- A customer may come in just to have his or her car serviced; that is, a customer need not buy a car to be classified as a customer.
- When a customer takes one or more cars in for repair or service, one service ticket is written for each car.

Continued...

- The car dealership maintains a service history for each of the cars serviced. The service records are referenced by the car's serial number.
- A car brought in for service can be worked on by many mechanics, and each mechanic may work on many cars.
- A car that is serviced may or may not need parts (e.g., adjusting a carburettor or cleaning a fuel injector nozzle does not require providing new parts).
- A car has a serial number, make, model, colour, year.

Required

a) Show entity names, primary keys, attribute types for each entity.

(10 Marks)

b) Create an ERD to show how you would model this data. Show relationships between the entities and cardinality clearly.

(15 Marks)

Question 3 (25 Marks)

Table: products					
productID	**productCode**	**name**	**quantity**	**price**	**supplierID**
2001	PEC	Pencil 3B	500	0.52	**501**
2002	PEC	Pencil 4B	200	0.62	**501**
2003	PEC	Pencil 5B	100	0.73	**501**
2004	PEC	Pencil 6B	500	0.47	**502**

Continued...

Table: suppliers		
supplierID	**name**	**phone**
501	ABC Traders	88881111
502	XYZ Company	88882222
503	QQ Corp	88883333

Write SQL command to do the following tasks;

a) Create the above two tables with appropriate primary key and foreign key constraints.

(10 Marks)

b) Insert first record into the product table. (2 Marks)

c) Display product name, price, and quantity for those products for which quantity is below 200.

(3 Marks)

d) Display the details of products in which the price range from 0.5 to 1.0 and quantity range from 300 to 500.

(3 Marks)

e) Display product name, price and supplier name by joining the Product table and suppliers table.

(3 Marks)

f) Display the maximum value of price, average value price, sum of quantity of the products.

(4 Marks)

Continued...

Question 4 (25 Marks)

Big data is a term used to describe a collection of data that is huge in size and yet growing exponentially with time.

a) Explain the three types of big data; structured, unstructured and Semi-structured with an example.

(9 Marks)

b) How do business organizations can benefit from big data processing and analytics? Give 5 applications.

(10 Marks)

c) Explain the two main categories of technologies used to implement big data solutions

(6 Marks)

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